



# SF2526 Numerical algorithms for data-intensive science 7.5 credits

Numeriska algoritmer för vetenskapliga problem med stora datamängder

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

## Establishment

Course syllabus for SF2526 valid from Spring 2019

## Grading scale

A, B, C, D, E, FX, F

## Education cycle

Second cycle

## Main field of study

Mathematics

## Specific prerequisites

Basic course in numerical analysis and computer science.

Single course students: 90 university credits including 45 university credits in Mathematics or Information Technology. English B, or equivalent

## Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

After completing the course, the student will be familiar with important numerical methods and algorithms used to analyze data and describe when they are useful.

- The student should be able to independently identify and formulate the problems data-oriented problem classes presented in the course.
- The student will be select an appropriate algorithm to use to the solve the problems.
- The student should be able to describe algorithm properties and associate them with specific problem properties
- The student will be able to derive new variants and methods based generalizing methods in the course.

## Course contents

The course is mainly focused on the algorithmic and practical computational aspects in the following blocks.

- Numerical algorithms for data-intensive least squares problems
- Numerical algorithms for large graphs, networks and clustering
- Numerical algorithms for distance measures and classification

## Disposition

- Lectures
- Laborations

## Course literature

The course literature will be announced in the detailed course syllabus.

## Examination

- LAB1 - Laboratory work, 3.5 credits, grading scale: P, F
- TEN1 - Exam, 4.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

The examiner decides, in consultation with KTHs Coordinator of students with disabilities (Funka), about any customized examination for students with documented, lasting disability. The examiner may allow another form of examination for reexamination of individual students.

## Other requirements for final grade

- Laborations completed (LABA)
- Written Exam completed (TEN1)

## Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.